

Improvements in Disease Rating Scale after 8-weeks of Resistance Training with Instability and/or Cadence Walking in Persons with Mild to Moderate Parkinson's Disease

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ABSTRACT

Physical activity helps slow the progression of Parkinson's disease (PD). Resistance training with instability (RTI) and cadence walking (CW) add an additional skill (compared to resistance training and walking alone) to improve neuromuscular connections and blood flow to the brain during exercise. A cross-training exercise regimen, combining both resistance training and walking, has not been studied to determine its effect on the progression of Parkinson's disease. **PURPOSE:** to examine the changes in Parkinson's disease progression determined by the Unified Parkinson's Disease Rating Scale (UPDRS) after 8-weeks of RTI, CW and RTI+CW in individuals with mild to moderate PD. **METHODS:** individuals diagnosed with mild to moderate PD (N=10 (1 female, 9 males); Hoehn and Yahr (MHY) stage=1.5 ± 0.4; age = 66 ± 12 y; BMI = 28.10 ± 2.5 kg/m²) were randomized into RTI, CW or RTI+CW exercise groups for 8-weeks. RTI and CW were performed 3 days/week and RTI+CW was performed 4 days/week (2 days RTI and 2 days CW). RTI included full-body machine and free-weight exercises with volume (reps and sets) and instability progressions. CW included volume (time) and intensity progressions for 8-weeks. **RESULTS:** there was a significant difference in the objective motor examination (ME) improvement on the UPDRS between RTI and CW (0.14 ± 0.36 and 0.36 ± 0.42, P=0.034). No group differences were found in the subjective self-reported activities of daily living (ADL) section on the UPDRS. Significant time interactions were found for the pre- and post-ratings of ADL (0.80 ± 0.41, 0.88 ± 0.55, P<0.001), ME (0.65 ± 0.18, 1.07 ± 0.48, p=0.03) and the MHY Staging (1.5 ± 0.39, 1.4 ± 0.44, P=0.050). **CONCLUSION:** RTI improves ME scores significantly more than CW after 8-weeks in persons with mild to moderate PD. RTI, CW and a combination of the two improves subjective ratings (ADL) and objective ratings (ME and MHY) after 8-weeks.